

## **SCOPE OF WORK**

### **ENVIRONMENTAL SCIENCE AND ENGINEERING AND SITE REMEDIATION**

**GENERAL DESCRIPTION OF WORK:** The work consists of providing hazardous waste remediation services, as described herein, on a statewide basis as assigned by individual task orders issued to access the master contract issued under this statement of interest (SOI). The purpose of the work is to remediate hazardous waste, toxic substances, solid waste and petroleum contaminated sites as regulated by State and Federal statutes and regulations on an “as needed” basis. The work may include, but is not limited to, excavation, hauling and disposal or treatment of contaminated soil, in-situ remediation of contaminated soil, in-situ remediation of contaminated surface water and groundwater, pumping and treating contaminated water, disposal of contaminated water, remediation of indoor air, risk assessment of contaminated sites, responding to and remediating spills, operation and maintenance of on-going remedial systems, decommissioning remedial systems, conducting fate and transport modeling, site investigation/characterization, and site restoration. The successful contractor may be called on to assist CDOT as an expert witness.

**RESPONSIBILITY:** The contractor shall be solely responsible for the safe and satisfactory performance of all services required by the contract resulting from this SOI. All personnel working at the site will be required to have the training appropriate to the task including OSHA 40-hour Hazardous Waste Site Safety Training.

**CATEGORIES OF SERVICE:** There are 9 categories of service to be provided by the contractor under this contract as follows:

- A. **Hazardous Waste Remediation:** The contractor will be required to design, install, operate and maintain a remediation system or process for hazardous waste sites as defined under Resource Conservation & Recovery Act (RCRA), subtitle C or toxic substances as regulated under the Toxic Substances Control Act (TSCA). The remediation can be in any media, including water, soil, and/or air. The contractor will be responsible for the proper disposal of all wastes generated as a result of the remediation or other site activities. The contractor may be required to perform a risk assessment of the site as well as additional site characterization.
- B. **Petroleum Waste Remediation:** The contractor will be required to design, install, operate and maintain a remediation system or process for petroleum contaminated waste sites as defined under RCRA subtitle I. The remediation can be in any media, including water, soil and/or air. The contractor will be responsible for the proper disposal of all wastes generated as a result of the remediation or other site activities. The contractor may be required to perform a risk assessment of the site as well as additional site characterization.
- C. **Solid Waste Remediation:** The contractor will be required to design, install, operate and maintain a remediation system or process for solid waste sites as defined under RCRA subtitle D. The remediation can be in any media, including water, soil and/or air. The contractor will be responsible for the proper disposal of all wastes generated as a result of the remediation or other site activities. The contractor may be required to perform a risk assessment of the site as well as additional site characterization.
- D. **Site Investigation/Characterization:** The contractor will be required to conduct adequate and appropriate investigations and characterizations of soil/groundwater/surface water/indoor air to fully delineate both vertical and horizontal extent of affected media for petroleum contaminated sites as defined under RCRA subtitle I, hazardous waste sites as defined under RCRA, subtitle C or toxic substances as regulated under the TSCA, solid waste sites as defined under Subtitle D of the RCRA. This work may also include delineation of contaminant type. The contractor will be responsible for the proper disposal of all wastes generated as a result of the investigation/characterization.

- E. Spill response: The contractor will be required to respond to highway spills containing any materials regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and State and local solid waste regulations, including illicit drug lab wastes and biohazard wastes. The contractor will also be required to conduct remediation of all materials that may be affected by the related spill. The contractor will be responsible for the proper disposal of all wastes generated as a result of the remediation. The contractor may be required to perform a risk assessment of the site as well as additional site characterization.
- F. Second Opinion Services: The contractor will be required to evaluate all pertinent data to render a professional opinion.
- G. Expert Witness Services: The contractor will be required to provide expert witness service in support of litigation and public involvement processes involving CDOT property or other properties in the vicinity thereof.
- H. Site Restoration Services: The contractor will be required to restore remediation sites to an appropriate condition as determined by CDOT.
- I. Technical Advisory Assistance: The contractor will be required to provide assistance to the CDOT project manager or engineer, evaluation and/or confirmation of site activities or plans in order to provide CDOT with any required environmental document(s). This work may include any of the documents previously discussed in addition to providing procedures and specifications to a contractor, for the purpose of providing CDOT guidance with solid-, petroleum-, or hazardous-waste identification, management, and/or disposal within a project.

**HAZARDOUS WASTE REMEDIATION:** CDOT owned or managed sites contaminated by material regulated under TSCA or Subtitle C of the Resource Conservation and Recovery Act shall be remediated in accordance with all applicable State and Federal statutes and regulations and local ordinances. The contractor will submit a Health and Safety Plan (HASP) when required by the CDOT Project Manager. The HASP will cover all phases of work expected at the site. Where appropriate, the contractor will also submit a Sampling and Analysis Plan (SAP). The SAP will include a brief description of the site, the type of sampling and media to be sampled, the laboratory analysis (including methodology) to be done, the Quality Control/Quality Assurance sampling to be done, and the regulatory standards for target compounds. A Quality Assurance Project Plan (QAPP) may also be required. Prior to any work taking place, a certified traffic control plan will be presented to the project manager of any and all remediation sites where the traveling public's safety is a concern.

The contractor will be required to review all relevant data for the project site. Data may include but is not limited to Phase I site assessments, Phase II site investigations, Corrective Action Plans, Corrective Measures Plans, groundwater monitoring reports and/or other data packages. The contractor may be required to perform a Risk-Based Corrective Action (RBCA) study in accordance with ASTM guide E2081-00 or E2205/E2205M and/or additional and appropriate ASTM standards. The contractor may be required to assess the feasibility of the remediation through bench-scale or pilot testing when appropriate. The contractor will be required to submit a Work Plan detailing the work to be done, the time frame involved, total cost of the work, and materials to be used. Any engineering plans, drawings, designs, etc. must be done under the supervision of a professional engineer, licensed in the State of Colorado. Any Health and Safety Plans should be reviewed and approved by a Certified Industrial Hygienist (CIH). The contractor may be required to do all work needed to acquire any pertinent State, local or Federal permits for the project. All such permits will be held by CDOT. The contractor must be capable of performing additional site characterization work, if necessary.

Installation of the remediation system will be done in accordance with approved plans and under the supervision of a professional engineer, licensed in the State of Colorado. If a remediation process (such as a dig and haul) is appropriate instead of an engineered system, the work will be done under the supervision of an appropriate environmental professional. Each site will also include confirmatory air, surface water

and soil sampling and/or groundwater monitoring to establish correctness of the design or process as well as performance of the design or process.

The contractor will be responsible for seeing that all waste material generated during remediation and monitoring will be properly stored, characterized, transported and disposed or treated. Additionally, the contractor may be responsible for processing CDOT "Permission to Enter Property" forms for access to properties not owned by CDOT. All data generated by the project will be transmitted to CDOT in draft and final copies in a timely manner. The number of copies and style of the report will be determined by the CDOT project manager.

**PETROLEUM WASTE REMEDIATION:** CDOT owned or managed sites contaminated by material regulated under Subtitle I of the Resource Conservation and Recovery Act shall be remediated in accordance with all applicable State and Federal statutes and regulations and local ordinances. The contractor will submit a HASP when required by the CDOT project manager. The HASP will cover all phases of work expected at the site. Where appropriate, the contractor will also submit a SAP. The SAP will include a brief description of the site, the type of sampling and media to be sampled, the laboratory analysis (including methodology) to be done, the Quality Control/Quality Assurance sampling to be done, and the regulatory standards for target compounds. Prior to any work taking place, a certified traffic control plan will be presented to the project manager of any and all remediation sites where the traveling public's safety is a concern.

The contractor will be required to review all relevant data for the project site. Data may include but is not limited to Phase I site assessments, Phase II site investigations (Initial Site Characterization Reports), Corrective Action Plans, Corrective Measures Plans, groundwater monitoring reports and/or other data packages. The contractor may be required to perform a Risk-Based Corrective Action (RBCA) study in accordance with ASTM guides E1739, E2081-00 or E2205/E2205M and/or additional and appropriate ASTM standards. The contractor may be required to conduct a RBCA model in accordance with the current Department of Labor, Division of Oil and Public Safety (OPS) Guidelines. The contractor may be required to assess the feasibility of the remediation through bench-scale or pilot testing when appropriate. The contractor will be required to submit a Work Plan detailing the work to be done, the time frame involved, total cost of the work, and materials to be used. Any engineering plans, drawings, designs, etc. must be done under the supervision of a professional engineer, licensed in the State of Colorado. Any Health and Safety Plans should be reviewed and approved by a CIH. The contractor may be required to do all work needed to acquire any pertinent State, local or Federal permits for the project. All such permits will be held by CDOT. The contractor must be capable of performing additional site characterization work, if necessary.

Installation of the remediation system will be done in accordance with approved plans and under the supervision of a professional engineer, licensed in the State of Colorado. If a remediation process (such as a dig and haul) is appropriate instead of an engineered system, the work will be done under the supervision of an appropriate environmental professional. Each site will also include confirmatory air, surface water and soil sampling and/or groundwater monitoring to establish correctness of the design or process as well as performance of the design or process. The contractor will be responsible for seeing that all waste material generated during remediation and monitoring will be properly stored, characterized, transported and disposed or treated. Additionally, the contractor may be responsible for processing CDOT "Permission to Enter Property" forms for access to properties not owned by CDOT. If it is more appropriate to run a Fate and Transport Model to achieve closure, the OPS approved contaminant transport model will be run and results submitted to CDOT. All data generated by the project will be transmitted to CDOT in draft and final copies in a timely manner. The number of copies and style of the report will be determined by the CDOT project manager.

**SOLID WASTE REMEDIATION:** CDOT owned or managed sites contaminated by material regulated under Subtitle D of the Resource Conservation and Recovery Act shall be remediated in accordance with all applicable State and Federal statutes and regulations and local ordinances. The contractor will submit a HASP when required by the CDOT project manager. The HASP will cover all phases of work expected at the site. Where appropriate, the contractor will also submit a SAP. The SAP will include a brief description of the site, the type of sampling and media to be sampled, the laboratory analysis (including

methodology) to be done, the Quality Control/Quality Assurance sampling to be done, and the regulatory standards for target compounds.

Prior to any work taking place, a certified traffic control plan will be presented to the project manager of any and all remediation sites where the traveling public's safety is a concern.

The contractor will be required to review all relevant data for the project site. Data may include but is not limited to Phase I site assessments, Phase II site investigations, Corrective Action Plans, Corrective Measures Plans, groundwater monitoring reports and/or other data packages. The contractor may be required to perform a Risk-Based Corrective Action (RBCA) study in accordance with ASTM guides E1739, E2081-00 or E2205/E2205M and/or additional and appropriate ASTM standards. The contractor may be required to assess the feasibility of the remediation through bench-scale or pilot testing when appropriate. The contractor will be required to submit a Work Plan detailing the work to be done, the time frame involved, total cost of the work, and materials to be used. Any engineering plans, drawings, designs, etc. must be done under the supervision of a professional engineer, licensed in the State of Colorado. Any Health and Safety Plans should be reviewed and approved by a CIH. The contractor may be required to do all work needed to acquire any pertinent State, local or Federal permits for the project. All such permits will be held by CDOT. The contractor must be capable of performing additional site characterization work, if necessary.

Installation of the remediation system will be done in accordance with approved plans and under the supervision of a professional engineer, licensed in the State of Colorado. If a remediation process (such as a dig and haul) is appropriate instead of an engineered system, the work will be done under the supervision of an appropriate environmental professional. Each site will also include confirmatory air, surface water and soil sampling and/or groundwater monitoring to establish correctness of the design or process as well as performance of the design or process. The contractor will be responsible for seeing that all waste material generated during remediation and monitoring will be properly stored, characterized, transported and disposed or treated. Additionally, the contractor may be responsible for processing CDOT "Permission to Enter Property" forms for access to properties not owned by CDOT. All data generated by the project will be transmitted to CDOT in draft and final copies in a timely manner. The number of copies and style of the report will be determined by the CDOT project manager.

**SITE INVESTIGATION/CHARACTERIZATION:** CDOT owned or managed sites potentially contaminated by material regulated under TSCA, Subtitle C, Subtitle D, or Subtitle I of the Resource Conservation and Recovery Act shall be investigated and characterized in accordance with all applicable State and Federal statutes and regulations and local ordinances. The contractor will submit a HASP when required by the CDOT project manager. The HASP will cover all phases of work expected at the site. Where appropriate, the contractor will also submit a SAP. The SAP will include a brief description of the site, the type of sampling and media to be sampled, the laboratory analysis (including methodology) to be done, the Quality Control/Quality Assurance sampling to be done, and the regulatory standards for target compounds. Prior to any work taking place, a certified traffic control plan will be presented to the project manager for any and all sites where the traveling public's safety is a concern. Subsequent to the field work a standard Initial Site Assessment (ISA) report in accordance with ASTM E 1527-00 and E 1528-00 standards will be prepared when appropriate.

The contractor will be required to review all relevant data for the project site. Data may include but is not limited to Phase I site assessments, Phase II site investigations, groundwater monitoring reports and/or other data packages. The contractor will be required to submit a work plan detailing the work to be done, the time frame involved, total cost of the work, and materials to be used. Any Health and Safety Plans should be reviewed and approved by a CIH. The contractor may be required to do all work needed to acquire any pertinent State, local or Federal permits for the project. All such permits will be held by CDOT.

All work conducted on site will be done in accordance with approved plans and under the supervision of an appropriate environmental professional. The contractor will be responsible for seeing that all waste material generated during remediation and monitoring will be properly stored, characterized, transported and disposed or treated. Additionally, the contractor may be responsible for processing CDOT "Permission to Enter Property" forms for access to properties not owned by CDOT.

All data generated by the project will be transmitted to CDOT in draft and final copies in a timely manner. The number of copies and style of the report will be determined by the CDOT project manager.

**SPILL RESPONSE:** CDOT owned or managed properties in which a spill has occurred releasing materials to the environment which are regulated under CERCLA as well as State and local solid waste regulations including illicit drug lab wastes and bio-hazard wastes, shall be responded to as soon as authorized by the CDOT Project Manager. All released materials and media affected by the released material shall be removed and/or remediated in accordance with all applicable State and Federal statutes and regulations and local ordinances. The contractor should have a generalized HASP on file to address activities that will be conducted during such an event. The HASP will cover all phases of work expected at the site.

All work will be done under the supervision of an appropriate environmental professional. Each site will also include confirmatory surface water, soil sampling and/or groundwater sampling to establish completeness of the removal activities. The contractor will be responsible for seeing that all waste material generated during the response action will be properly stored, characterized, transported and disposed or treated. The contractor may be required to do all work needed to acquire any pertinent State, local or Federal permits for the project. All such permits will be held by CDOT. The contractor must be capable of performing additional site characterization work, if necessary. All data generated by the project will be transmitted to CDOT in draft and final copies in a timely manner. The number of copies and style of the report will be determined by the CDOT project manager.

**SECOND OPINION SERVICES:** The contractor shall be provided pertinent data CDOT has collected for the project (or portion thereof) to be evaluated. Based on these data, the contractor shall make an independent evaluation of the data and provide a recommendation of how the project, or a portion thereof, should proceed. Major elements of the recommendation shall include, but not be limited to, identification of any additional data collection required, methodology(ies) to be applied, general approach to the problem, and a proposed cost estimate. This recommendation will include a discussion of the most appropriate and cost effective technology available. These elements shall be furnished in report format to the designated CDOT representative.

**EXPERT WITNESS SERVICES:** Occasionally CDOT will require expert witness services associated with litigation or public hearings or meetings. The subject matter of the expert witness services is expected to include but not be limited to, engineering, geology, hydrology, hydraulics, chemistry, health risk (including toxicology and epidemiology), and regulatory issues.

**SITE RESTORATION SERVICES:** At the close of remediation or other intrusive or disruptive activities, the contractor will be required to restore the site to a condition to be determined by CDOT. This may include, but is not limited to, removal of all or part of an engineered system (monitoring wells, pumps, piping, etc.), regrading the site, replacing the vegetation, and replacement of small-scale structures (sidewalks, retaining walls, culverts, piping, etc.). Any design work may require the supervision of a professional engineer, licensed in the State of Colorado. The contractor may be required to do all work needed to acquire any pertinent State, local or Federal permits for the project. All such permits will be held by CDOT. The contractor will be responsible for seeing that all waste material generated during restoration will be properly stored, characterized, transported and disposed or treated. All data generated by the project will be transmitted to CDOT in draft and final copies in a timely manner. The number of copies and style of the report will be determined by the CDOT project manager. Prior to any work taking place, a certified traffic control plan will be presented to the project manager of any and all sites where the traveling public's safety is a concern.

**TECHNICAL ADVISORY ASSISTANCE:** The contractor shall be provided pertinent data CDOT has collected for the project (or portion thereof) to be evaluated. Based on these data, the contractor shall make an independent evaluation of the data and prepare any document needed to allow CDOT to proceed with the project, or a portion thereof, in a matter that is in compliance with federal and state regulations and in accordance with all project specifications. This work may include preparation of any of the documents previously discussed, in addition to providing procedures and specifications to a contractor, for the purpose of providing CDOT guidance with solid-, petroleum - or hazardous waste identification, management, and/or disposal within a project.

